Car Digital Hard Disk Recorder

User Manual

Before installing and using, be sure to read the Manual, then you will properly use and protect your machine. The first part of the statement concerns the matters to be attention to before installing and using.

- **Attention**
  - To protect your rights, before using and installing, please carefully read the contents of the manual.
  - This product is used for car inside, in order to prevent short-circuit or the risk of electric shock, do not make the machine on the rain or humidity environment.
  - Event of any solid or liquid into the machine, please disconnect the power of the machine immediately, and ask the qualified technical staff to check, then restart it.
  - The product is high-tech equipment; machines can not be repaired by users even very small original part. Once failure occurs, please ask for the qualified technical personnel, or contact with the dealer. Do not repair it by users themselves.
- **Installation Environment**
  - 8-48V DC power supply, please confirm the local power supply before power on.
  - If the machine were not used for a long time, please completely disconnect the video's power supply.
  - Please select the appropriate location for the installation of the machine, where the air can flow freely around the machine to avoid overheating.
  - Machine can not be installed near the radiators, or near the ventilation road which is near heat, or directly under sunshine, or too much dust, or near the area where the mechanical vibration or impact happens.
- **Packing List**

Name	Count
Four Channel HDD Recorder	1
User Manual	1
Certificate of Quality	1
Remote Control	1
Connection Port	2
PC View Soft Disk	1
Shockproof pad, DVR holder, Screw,etc.	1

Note: When the specification or parameters changes, no other announcement in addition.

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1 Product Overview

The four-channel embedded digital hard disk video recorder is designed for car safety. It uses embedded processor and embedded operating system, combined with video / audio compression / decompression, GPS, car recorder, and the capacity hard disk storage technology to confirm the high intelligence and high stability. Widely used for bus, ship, train, and other areas of security.

2 Features

2.1 Operating System

- Embedded Linux operating system, to eliminate the virus infection; more stable.
- Chinese and English menu to switch.

2.2 Video Compression Standard

- H.264 Video formats，excellent screen, and the best bit stream.

2.3 Surveillance and Video Processing

- Surveillance: 4 channels D1 video (PAL: 720 * 576, NTSC: 720 * 480)
- Recorder: Total resources 100PAL, 120 NTSC. 4 channels CIF (PAL: 352* 288, NTSC: 352 * 240), HD1 (PAL: 704* 288, NTSC: 704 * 240), D1. (PAL: 704* 576, NTSC: 704 * 480) video storage separately.
- Three record modes: alarm record, timer record and manual record; support 4 channels video and 4channels audio record at the same time.
- Video quality: eight grades to adjust.
- Specially design for video file system to prolong the life of hard drive.
- The disk storage of video& audio data can not be artificially modified, which can be as the evidence of high credibility.

2.4 Playback and Search

- Playback is according to time .
- Support 4 channel video and 4 channel audio playback simultaneously, or 1 channel video and audio playback amplified(use the special PC viewer software).
- If playback on the machine with a LCD monitor, then it can just support 1 channel video and 1 channel audio playback amplified

2.5Hard Drive and Backup

- Pull style of hard drive box, Support 2.5-Inch notebook computer hard drive.
- Apply to Samsung, Hitachi SATA series of notebook computer drives.
- Use the USB interface to back up or hard drive box directly connected to a computer to backup.

2.6 Control

- Remote control.
- Dual MCU control, high steady workability

2.7 Designed to Prevent Vibration

- Non-fixed, suspended Hard Drive for shockproof protection, with excellent damping.
- Special SATA hard drive box connector design and reliable contact.
- Besides hard drive, the circuit board and the electronic components are dealt with shockproof and reinforcement.

2.8 Others

- USB software upgrading and simple maintenance.
- Password-protection keeps data away from destroy.
- Real-time and trigger video record to be selected.
- Prevent impulse voltage, low voltage supply protection.
- Time-lapse turn off the machine function(default: 5 seconds)
- Real-time clock

3 Technical Parameters

Items	Item Name	4 Channel Mobile DVR(HDD Storage)
	Item Number	TS-210
	Solutions	H.264 Main Profile
System	Operation Language	Chinese / English
	Operation Interface	Graphical Interfaces
	Password Control	User Password
Video	Video Input	4ch Independent Input: 1.0Vp-p，75Ω.Both B&W and Color Cameras
	Video Output	1 Channel PAL/NTSC Output, 1.0Vp-p，75Ω， Composite Video Signal
	Video Display	1 Or 4 Screen Display
	Viedo Standard	PAL:25frames/Sec;NTSC:30frames/Sec
	System Resources	PAL:100 Frames; NTSC:120 Frames
Audio	Audio Input	Four Channels Independent Input 600Ω
	Audio Output	1 Channel(4 Channels Can Be Convert Freely)
	Basic Output Level	1.0—2.2V
	Distortion Plus Noise	≤-30dB
	Recording Mode	Sound And Image Synchronization
	Audio Compression	ADPCM
Digital Processing & Storage	Image Compression	H.264 Fixed Code Stream
	Image Format	4*CIF (352*288), or 4*HD1(704*288), or 4*D1(704*576)
	Video Stream	CIF: 8K-64Kbyte/s; HD1 & D1: 32K-96Kbyte/s;
	Video Taking Up Of Hard Disk	CIF: 28M-230Mbyte / hour / channel HD1 & D1: 115M-340Mbyte / hour / channel
	Resolution	Playback 1 Channel
	Video Streaming Standard	H.264 Main Profile
	Audio Bitrate	4Kbyte / s / channel
	Audio Taking Up Of Hard Disk	14Mbyte / hour / channel
	Internal Storage	1 SATA Hard Disk,Support Max 2T Hard
	Image Quality	Eight Grades to Choose
Alarm	Alarm in	4 Channels Independent Input. High Voltage Trigger
Interface	USB Port	Available For USB Disk and Hdd（FAT32）Storage
	GPS,3G	Vehicle Tracking and Data Wireless Upload
Others	Power Consumption	DC8-48v 5% 8W（without HDD）
	Working Temperature	-20℃ ~ +60℃
	Clock	Built-In Clock, Calendar
Packaging	Product Size	213(L)*230(W)*63(H)mm（with Holder）
	Product Weight	1.9KG(without HDD)
	Package	Each In a Box, 10set/Canton
	Box Size	252(L)*93(W)* 250(H)mm
	Carton Size	500(L)*265(W)* 520(H)mm
	Carton Weight	19kgs/21kgs (without HDD)

4 Optional Features

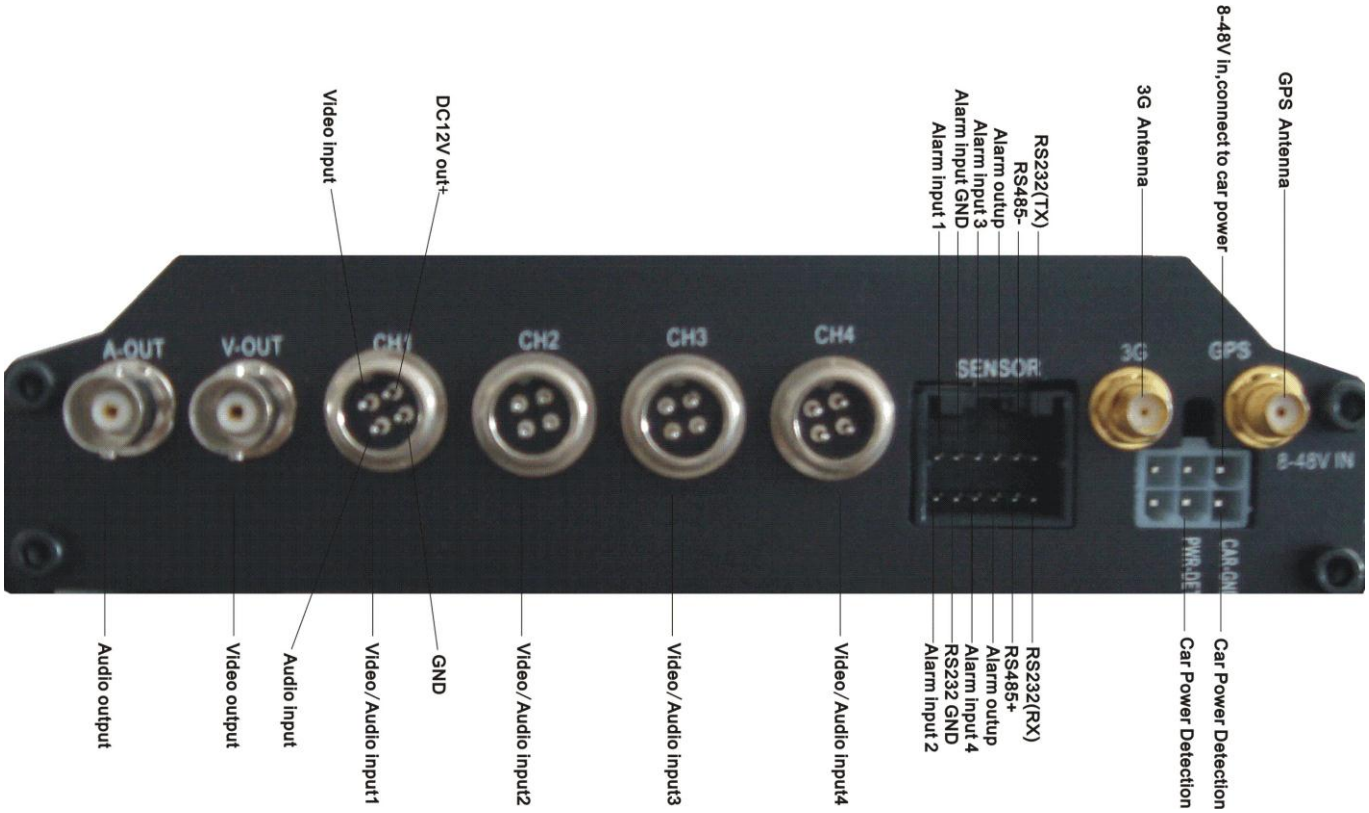
- Alarm record（4 channels input,1 channel output, 1 channel RS-232,1channel RS-485(PTZ)）
- GPS module
- 3G module

5 Instruction of Installation

5.1 Instruction of External Interface Wiring

1) BNC interface connection instruction:

2) 4 pin aviation interface connection instruction:



Remarks:

- If the power supply is 12V, then the current of 12V output can be just 1A. So if there are more than 3pcs cameras, we suggest customers to get power for other cameras from the 12V vehicle power directly or use Teswell’s special car power supply.
- Only customers have special requirements when placing orders, the “SENSOR” port will have ALARM functions. Or this port is useless.
- RS485 and RS232 interface are optional interface, available only when you listed in the order for this interface.

5.2 Instruction of HDD Installation

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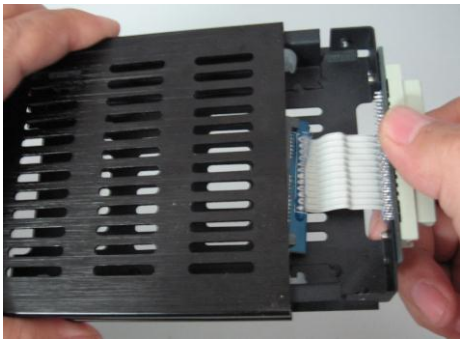

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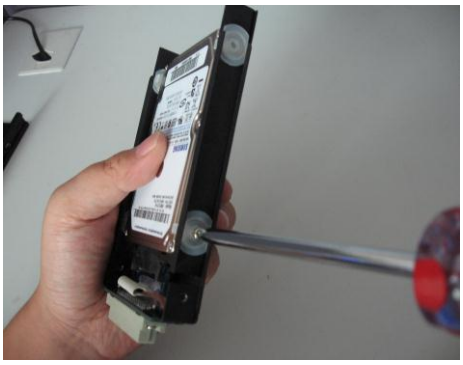

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Make sure whether power switch is turned on or turned off, if it is turned on, please use the key, turn the indentation on the “turn off” position.

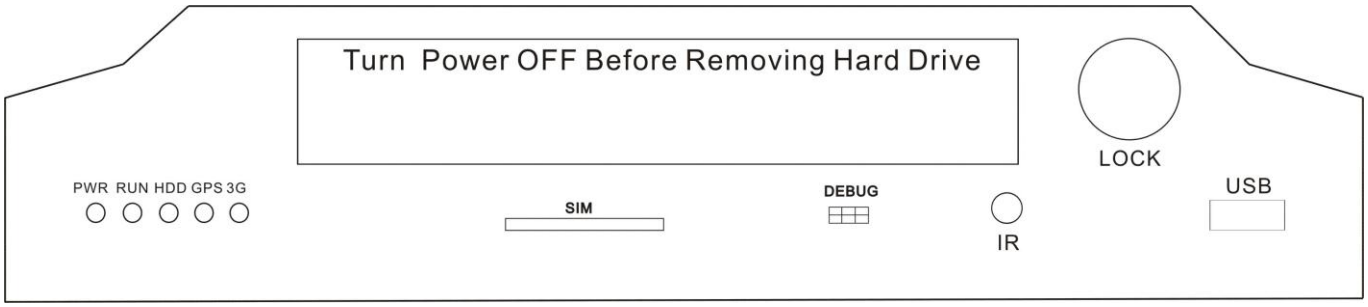
- Pull the front panel of the hard drive box. Carry out the hard drive and drop it on the table.
- Set down the two screws of the hard drive by cross-screwdriver.
- Drop the under backer of hard drive box, and then check the line whether it is on top of the under backer or not.
- Bring here the SATA hard drive which needs installation; connect the line joint of hard drive box to the hard drive. Please note the heading of the line while connecting. Make sure all of the connecting is complete done.
- Put the hard drive in the hard drive box. The obligate line of hard drive needs longer, the line of hard drive needs to lie on the right position.
- Let the four white screws of the machine through the center hole of the four shockproof rubber pads. Fix hard drive on the four holes of hard drive box, do not make the screws too taut, leave a little space for hard drive to move. So it can reach a perfect effect.
- Insert the hard drive under backer which has hard drive to the hard drive top backer, and then, use cross screwdriver and the screw to fix the under backer and the top backer.
- Aimed the hard drive box towards the groove of the front board, level push. Please note the face and back while pushing. Upturn the silk-screen on the right position.
- Wring the lock of the front board by key. Turn the groove on the “turn on” position, lock hard drive box to prevent hard drive from moving out.

Note : Hard drive fixing lock besides fixing the hard drive, also take the place of host power switch .So do this operation, make sure all lines are completely connected. Otherwise, if car‘s power have been connected with the standard input voltage, the machine should be destroyed. So while

installation, if the line has not been completely connected, please stop to do this step. More careful when installation. The hard drive can not roll out even it has not been locked.

6 Instruction of Using

6.1 Instruction of Front Panel



- **LED**
  - ✓ **PWR LED**: lighting while work starts. Power LED on.
  - ✓ **RUN LED**: LED flashing when machine is normal working.
  - ✓ **HDD LED**: when records, playback, video data are backing up, LED is flashing.
  - ✓ **GPS LED:** GPS working LED indicator
  - ✓ **3G LED**: 3G working LED indicator
- **Key and Other Descriptions**
  - ✓ DEBUG：Debug interface
  - ✓ SIM interface: 3G interface
  - ✓ IR: infrared receiving window.
  - ✓ LOCK: while removing the hard drive, use the key to unlock in order to remove the hard drive, unlock after machine's auto-disconnects the power, the power auto-connect after being locked.
  - ✓ USB: playback the video data of hard drive via USB .

NOTE:Recommend to use the SanDisk brand of the USB disk , the minimum volume 256M, must support the FAT32 file system.

6.2 Instruction of Remote Control Operation

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：Record key
-

：Lead to menu
-

：After entering sub-menu button to confirm, modify key parameters select .
-

：Play key
-
：Into menu mode, press left key, modify key parameters select .
-
：Into menu mode, press right key, modify key parameters select .
-
：Pause
-
：Stop
-
：Into menu mode, press up key.
-
：Into menu mode, press down key.
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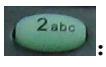
：①Recording video or play, screen zoom display in first channel.② System default password: six 1 this key.
- 

：①Recording video or play, screen zoom display in second channel.② Set System password.
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：①Recording video or play, screen zoom display in third channel.② Set System password.
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：①Recording video or play, screen zoom display in fourth channel.② Set System password

- : ①Four channels display.② Modify system's password
- Other number keys: Used for change password

6.3 Instruction of Menu Setup

In surveillance mode, press . If it is the first time to enter the MENU interface, system will show "ENTER THE PASSWORD"(The defaulted password is 1234). When finished, press to enter the MENU interface. In the recording mode, please press first to stop recording, and then press to enter the MENU interface.

- **Settings:** To set up items as below
  - ✓ **TIME:** Set up the time of the mobile DVR.
  - ✓ **CAR LICENSE：** Set up the vehicle ID number.
  - ✓ **LANGUAGE：** Can select"Chinese"or"English". When finished, please restart the machine, then this setting will be effected.
  - ✓ **VIDEO MODE：** Set up the video standard, can select PAL or NTSC. When finished, please restart the machine, then this setting will be effected.
  - ✓ **DELAY TIME：** This item is for time-lapse turn off function. Defaulted time is 5seconds, you can set to 5s,30s,60s,120s,300s,600s,1200s,1800s.3600s.7200s. When finished, please restart the machine, then this setting will be effected.
  - ✓ **PASSWORD：** Before change the password, you need to enter into the original password.
  - ✓ **NEW PASSWORD：** Enter into the new password.
- **HDD：** Can setup and check the information of the hard disk.
  - ✓ **HDD OVERWRITE：** Setup the rewrite function
  - ✓ **HDD TOTAL SIZE：** Show the total capacity of the hard disk.
  - ✓ **HDD FREE SIZE：** Show the rest capacity of the hard disk.
  - ✓ **HDD FORMAT：** Enter the password, the machine will format the hard disk and delet the video files in the hard disk automatically.
- **Record：** Settings for the video files.
  - ✓ **REC RESOLUTION：** CIF/HD1/D1
  - ✓ **RECORD FRAME：** 1~25frames（adjustable）

- ✓ **REC QUALITY：** Setup the picture quality(8 grades total，LOWEST—HIGHEST)
- ✓ **DISPLAY CH：** Setup how many channels display on the LCD monitor
- ✓ **File time:** set up record time of files (300~3600second)
- ✓ **VIDEO RECORD CH：** Setup the recording video channels, Red means record
- ✓ **AUDIO RECORD CH：** Setup the recording audio channels, Red means record.
- ✓ **REC SCHEDULE：** Setup the recording mode for different time

  White：No recording **Red**：Recording **S**：Alarm recording

- **Search：** Playback the recorded videos.
  - ✓ **FILE LIST：** Display the date of the videos, enter into the date, you can see the time list of the videos within the day. Select the time according to your needs, press “PLAY”on the remote control to playback the videos.
  - ✓ **PLAYBACK CH：** Only 1 channel can be playbacked on the machine with a LCD monitor(not on the computer), this item is for selecting the playback channel.
- **Video download:**
  - ✓ Connect USB Flash Drives or HDD to USB interface in front of the DVR
  - ✓ Shift to " Playback menu " , select target video for download by Remote control, press " OK " to start copy.
  - ✓ After download one section, do as the same way if your want to download more.
- **Alarm：**
  - ✓ **Alarm record time:** 10-90 second since alarm record.
- **Network：**
  - ✓ **DOMAIN NAME:** Used for 3G spy, Server domain
  - ✓ **SERVER PORT:** Used for 3G spy, Server Port
  - ✓ **STREAM SIZE:** available for 24kbps, 48kbps, 96kbps, 128kps
  - ✓ **STREAM FRAME:** available 1~25 fps

6.4Video Data Volume

The required volumes of video and video-related settings please see the following table

VIDEO QUALITY	Total Record Frame	Data Size Per Hour
HIGHEST	100 frame	1120 MB
HIGHER	100 frame	1012MB
HIGH（default）	100 frame	900 MB
BETTER	100 frame	780 MB
NORMAL	100 frame	675 MB
LOW	100 frame	560 MB
LOWER	100 frame	450 MB
LOWEST	100 frame	340 MB
Note: Based on users matching conditions to apply the appropriate drive and related settings.		